From: Chris Hazen
To: Fowler, Sarah
Cc: Silver, Wendy; Sheata, Carrie A
Subject: Re: SS811
Date: Thursday, September 03, 2015 3:21:47 PM

Sarah can I give you a call?

On Sep 3, 2015, at 3:14 PM, Fowler, Sarah <Fowler.Sarah@epa.gov> wrote:

> Chris, I would suggest that you get a geotechnical design and PE stamp on anything that is designed to cover both you and the property owners. An easier design may be available using sheet pile, pilings, etc. I just don't know the full story on designing barrier walls.
> Sarah Fowler
> Biologist
> Ecosystem Protection Program, EPA Region 8
> 303-312-6192
> **From:** Christopher Hazen [mailto:chrishazen@gmail.com]
> **Sent:** Thursday, September 03, 2015 12:40 PM
> **To:** Fowler, Sarah; Silver, Wendy
> **Subject:** SS811
> Hi Sarah and Wendy,
> I hope your return trip was uneventful.
> I wanted to discuss an alternative to the cast-in-place cutoff wall we discussed in the field. Rather than opening up a very wide trench to form a footer and stemwall as contemplated on-site I would like to propose a Flow-Fill (concrete) wall that would be poured directly in a trench.
> The advantage here is that we can retain in-situ material on either side of the trench (upslope and downslope) to assist with stability and minimize disturbance by using a much narrower trench. If we were to cast-in-place using forms for the concrete we need to open the trench to a 5' minimum width so we can set forms in the trench - this assumes a maximum depth of 4' - if we need to go deeper to reach the confining layer then we will need to lay-back the slopes of the trench for OSHA safety reasons. Then we need to backfill, compact and hope that there are not any voids that water will track through.
> By using a trenching bucket (1' width) on a mini-excavator we can dig to the required depth with a narrow disturbance without needing to open up a wide trench - we can then use Flow-Fill (concrete) to fill the trench to create the cutoff wall. This design will have the same effect on the groundwater as the cast-in-place cutoff wall Sarah proposed. Plus it will not require backfilling as the flow-fill will completely fill the trench. This will eliminate voids and the possibility of uneven compaction during the backfill process.
> I would appreciate the opportunity to discuss this further - I think it is a better approach and it will minimize disturbance south of the proposed retaining wall - as that area is wetlands we should be minimizing the disturbance footprint when installing the cutoff wall. Furthermore it will be safer.
> It was great to see you two ..

Chris

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